

Track Sessions for ICSQ 2009

Tuesday, November 10th

A2: How to Write “Lean and Mean” Requirements

by Timothy G. Olson

Advanced

Summary:

Requirements continue to be a major problem area for most organizations. According to industry reports, the leading causes of quality, cost, and schedule problems are lack of understanding of the customer’s needs, incomplete requirement specifications, and managing changing requirements. So what can an organization focus on now to address these requirements problems and write “lean and mean” requirements? How can organizations achieve measurable results by improving their requirements? This presentation will describe some practical approaches and best practices that organizations can use to measurably improve their requirements and their requirements process. This presentation will also describe how an organization can mature their requirements process.

A3: The Psychology of Software Quality

by Tim Roth

Intermediate

Summary:

So much of the research associated with Software Quality is directed at Six Sigma, Risk Management, Metrics, Lean and Agile, etc. While these technologies have an important role in Controlling Software, an aspect that does not get addressed sufficiently is the human aspect of our science. We cannot forget that Software Quality is practiced by people trying to influence the behavior of people performing software development. Addressing the entire life-cycle of Software Quality should include the mind and behavior characteristics the people performing this activity. There are many aspects in the study of the mind and behavioral characteristics of people who perform the Software Quality activity as well the same characteristics of the community of software practitioners which the Software Quality practitioner is trying to influence. This paper will try to demonstrate the importance of people’s minds and their behavior in the practice of Software Quality.

A4: Cheerleading vs. Manage by Fact

by Rebecca Draxten

Getting Started

Summary:

A practical case study for using measurement to communicate improvement success and drive continuous improvement.

Quick fixes and corrections can address immediate software problems, but don't just brush these problems aside to have them pop-up again. Only by understanding the importance of defect measurement in a well-defined quality control process can software problems be addressed with long-term results.

This case study presents an approach to identifying What you want to measure and What prerequisites need to be in place for your improvement effort; understanding Why do you want to collect this specific data; Why is the data collected what you need vs. what is easy; How do you measure effectiveness and How to communicate the process improvement impact.

B1: Management's Role in Achieving Predictable Software Development

by Steven R. Rakitin

Intermediate

Summary:

Many software development organizations lack discipline, credibility, and predictability. As a result, these organizations are unable to accurately predict when products will be released. The goal of Predictable Software Development™ is simply to deliver what was promised, when it was promised, and with the level of quality that customers expect. Becoming more predictable usually means changing the culture. To do this, Management must provide leadership, support, and commitment. This talk describes the critical role Management must play to help the organization achieve Predictable Software Development™.

B2: Economic Impact of Software Quality on Organizational Success

by Brenda Fisk

Intermediate

Summary:

Find out how the Cost of Quality and the Economics of Quality differ. Come hear how the implementation of many of the existing road maps for success has helped such companies as:

- Weyerhaeuser, an international forest product company, reduce downtime by 75%
- The Canadian Navy submarine retrofit \$200 million project maintain an “on time, and on budget” schedule
- Bank of America stabilize the loss of new checking accounts within one year
- Ceridian achieve savings of \$3,830,000 and \$4,200,000 on two of its projects within 3 years
- FedEx improve its “wrong days late” ratio from 1:49 to 1:73 in just three months, and
- Town of Newmarket learned the specific issues to address during a recent election.

These companies improved their organization, provided “value add” to their customers, and profited from the economic impact of implementing quality for organizational success.

B3: How to Get Management to Listen to Your Ideas

by Ed Weller

Getting Started

Summary:

A recurring thread in discussion groups is the “I presented this great idea for improvement to my boss and it was ignored. I need to find a new job/boss”. There are usually a few posts sympathizing, relating other horror stories, and then the discussion ends. We blame the boss and go about our work, without stopping to think that perhaps the fault is ours due to poor presentation of the idea or a lack of understanding of what the organization and your boss really need.

By recognizing how your bosses operate, what motivates them, and our own shortcomings in how we present improvement proposals we can be more effective acting as a change agent. This talk will present six lessons learned over the years from fighting in the continuous improvement trenches and some final thoughts on how to get your ideas accepted.

B4: Understanding Stakeholder Perceptions and Critical Steps for Successful Measurement

by Mary DeFoe

Getting Started

Summary:

Companies struggle with establishing effective measures for software. Many seek to improve productivity, quality, and/or reduce costs. The question is “Where do I start?” and “How to ensure ongoing success?”

There is a familiar tale called the Elephant and the Blind Men. This tale helps us understand the difficulties in developing a successful measurement story based upon various perspectives. Within IT there are various stakeholders to consider, with a unique set of perspectives and challenges. The key is to recognize their needs and manage their concerns.

A review will be done of the Goal/ Question/ Metric approach which can assist you in identifying “what” measures are critical for your success. Next, explore “how” to implement via a repeatable measurement process. A review will be done of key industry measures to collect during the project life cycle. Sample charts for project and organizational reports will be reviewed representing these measures.

C1: 8 Steps to Effective Use Cases

by Linda Westfall

Getting Started

Summary:

Use cases are an easy and effective technique for defining user-level requirements. Through the addition of more detail to the use cases, they can also be used to define the product level requirements and even the design of the product. This presentation defines an eight-step process for creating and documenting effective use cases. A real world example is utilized throughout this presentation to illustrate each of the eight steps in an interactive discussion with the attendees.

C2: Managing A Virtual Test Team

by Neil Price-Jones

Advanced

Summary:

What happens when an Agile/Xtreme project is already more than 50% done with no test plan, test cases, test data, test environments, or test resources in place? In his presentation, Neil will discuss an approach for managing a virtual test team under just these circumstances. A real life scenario characterized by the above conditions will be examined including the methodology used to ensure project success under extreme time constraints with changing requirements and no room for error. In this case, a few

missteps and some major privacy breaches later, a reasonably stable project emerged with a fair chunk of testing completed and sufficient confidence to release the product for use by the end customer. Neil will explain the challenges involved in dealing with a virtual test team when under pressure, including organizing the team, planning the effort on short notice and the role of the team lead.

C3: How to Identify the Right Dashboard Metrics

by Kandy Senthilmaran

Intermediate

Summary:

Translate organizational goals, aligned with the voice of the customer (VOC), into meaningful metrics through a Critical to Quality (CTQ) analysis. This presentation outlines how to do a CTQ, align your metrics into a CIO, COO and Project dashboard and the differences between scorecards and dashboards. This structured approach creates dashboards that equip leadership with metrics aligned with customer expectations.

C4: Use the Cost of Quality Model to Drive Improvement

by Rebecca Staton-Reinstein

Getting Started

Summary:

How you can create a systematic approach to improving the results of your S/W projects; How to implement simple metrics and processes and demonstrate their effectiveness.

D1: Process Performance Modeling

by Robert Stoddard

Intermediate

Summary:

As the community becomes more aware of the detailed characterization of CMMI process performance models, there is a need for additional guidance on the process of how one properly builds a process performance model. The authors have combined their varied and in-depth modeling experiences to support a one-stop shopping reference for building these models. This tutorial will address both the technical side and psychological side of planning, initiating, developing, executing, and maintaining process performance models.

D2: I Went to A Testing Conference and All They Talked About was Requirements

by Robin Goldsmith
Getting Started

Summary:

Testers need to know what the requirements are in order to confirm that systems meet the requirements. Yet, too often testers receive requirements which are too late and inadequate. Thus, how to get timely testable requirements increasingly is becoming testers' major concern. In this interactive session, Robin Goldsmith reveals seldom-recognized issues that often impact or even defeat requirements efforts and suggests ways testers can contribute effectively to getting the clear and accurate requirements they need.

- * Implications of testers as requirements definers
- * Distinguishing business requirements from software requirements
- * Avoiding the testability trap.

D3: The Impact of Process Discipline on Personal Productivity and Quality

by Mark C. Paulk
Intermediate

Summary:

For many years software professionals have recognized that there are order of magnitude differences in the performance of individual professionals. Empirical research going back over four decades demonstrates that the best performers are able to perform better than the worst by 10:1 or more. Proponents of software process frameworks such as the Capability Maturity Model for Software are sometimes accused of believing that process makes up for mediocrity. This paper reports research on the impact of the Personal Software Process (PSP) on the performance of both the top and bottom students. Increasingly disciplined processes improve the performance of the worst to surpass that of the best students at the beginning of the class, but the best students also improve and remain significantly better performers than those who were at the bottom.

D4: The Agile Debate - Panel

by Ron W. McClintic
Getting Started

Summary:

Every few years a “new” method of software project management comes around. Currently Agile is the latest and greatest. But is it really so good? Listen to a point-counterpoint debate of the merits of Agile.

Wednesday, November 11th

E1: Test Automation Using Virtualization

by Mona Shah
Intermediate

Summary:

Virtualization environments have been a boon to computing, enabling testers to easily set up, store and maintain legacy operating system platforms and applications, enabling different production phases to be conducted in a staged testing environment.

In this session, you will learn how to use automation software to save resources effectively. You will also find the role of automation in agile testing, traditional test automation tools and the challenges and the advantages of test automation. When you leave this class, you will be familiar with the techniques to effectively automate virtual testing with fewer resources and use event-based integration testing.

E2: Using Lean Principles and Process Models to Achieve Measurable Results

by Timothy G. Olson
Intermediate

Summary:

Many organizations suffer from lack of measurable results and from processes that are too large, too complex, and too hard to use. Most organizations are struggling with how to define “good processes” that are “lean and mean”. This presentation will describe what is a “good process”, and describe how to use process models and lean principles to achieve measurable results (e.g., increased productivity, performance, quality, ROI, etc). Principles from lean will be explained and how they can be incorporated into process models and lean metrics. This presentation will discuss common problems with process documentation, discuss the human aspects of using documentation, provide some lessons learned of “what works” and “what doesn’t work”, and provide some lean examples and measurable results from industry. The best practices described in this presentation also scale up to complex processes. There will also be time for questions and answers.

E3: Using ITIL to Improve Software Quality Processes

by Robert R. Moeller

Intermediate

Summary:

There are multiple recognized standards and approaches in use today for improving and monitoring software quality in an enterprise, including appropriate IEEE standards and CMMI processes. However, these software quality standards tend to focus on new, in-house software development projects even though many enterprises today are not just developing new software applications “from scratch” but are implementing IT software tools that contain mixes of table-parameter customized vendor software, modified existing software packages, and some totally new development packages. Software quality can be a very key concern in this often common mixed environment.

This paper looks at other approaches for improving software quality, with an emphasis on CMMi, and suggests implementation problems with it for some of today’s enterprises. The paper also introduces the Information Technology Service Library (ITIL) Service Lifecycle set of best practices, in its current version 3, format and explains how the implementation of ITIL best practices can be an approach to help an enterprise to improve its software quality processes. The paper also shows how ITIL has strong linkages with other quality improvement guidance materials, such as IS)/IEC 2000, CobiT, Six Sigma, PMBOK, and even CMMi.

Where it is used today, ITIL is too often thought of as more of an IT infrastructure tool with an emphasis on such things as improving IT service desk operations. However, effective implementation of ITIL’s service lifecycle approach can help an enterprise to improve its overall software development quality processes, whether new applications, modifications of existing processes, or establishing improved service levels. Based on some actual project consulting experiences, the paper suggests how an enterprise can embrace and adopt ITIL best practices with an emphasis on improving and monitoring their software quality processes.

E4: Your Quality Tools for Software

by Taz Daughtrey

Getting Started

Summary:

How can you best apply to software the classic “basic quality tools” and the “new management and planning tools”? Examples will familiarize you with the appropriate application of each of these tools to software quality engineering.

F1: Building a Global Culture of Software Quality

by Bob Yacobellis

Getting Started

Summary:

Motorola has been known for its commitment to quality in its products and services. One of Motorola's Corporate Technology Organizations, the Motorola Global Software Group (GSG), took this commitment to heart by embracing the Software Engineering Institute's Capability Maturity Model Integrated (CMMI®) as a mechanism to assure high quality, rapid production time, low cost, and customer delight. This presentation provides the history of the purpose-built GSG software organization and the background for GSG's use of the CMMI, and shares the results of combining an optimizing process approach with an organizational quality culture to drive world-class levels of software quality, continuous software improvement, and organization success.

F2: Pitfalls in Globally Distributed Projects

by Siegfried Zopf

Getting Started

Summary:

The paper presents the essence of experience from hundreds of development projects distributed over locations in eight countries with different languages and culture. Theoretically we have everything under control, but there are pitfalls on the way to success. The presentation treats problems that have origin in the structure of projects, in project management and development process. Practical tips will be given for how to deal with soft facts as esteem and team building in global projects. It is explained how to avoid falling into traps in communication between different cultures in foreign languages.

F3: Best-In-Class Early Defect Detection and Defect Prevention to Achieve Measurable ROI

by Timothy G. Olson

Advanced

Summary:

Measurable return on investment (ROI) usually takes years to achieve. How can organizations achieve measurable ROI faster? This presentation will describe how to apply early defect detection processes and achieve measurable ROI within a year. Early defect detection averages 7:1 ROI. The secret is to use early defect detection to dramatically increase defect removal efficiency (i.e., the total amount of defects identified early in the process). Best practices such as data driven checklists will be presented. Measuring ROI using defect dollarization will also be discussed. This presentation will discuss best-in-class early defect detection processes (i.e., inspections, walkthroughs, peer reviews) and ROI technical approaches (defect dollarization, cost of poor quality, cost performance indexes). Defect prevention will also be discussed. There will also be time for questions and answers.

F4: Lessons Learned in Using Goals/Questions/Metrics and Balanced Scorecards to Drive Software Process Improvements to Achieve Business Objectives

by Girish Seshagiri

Advanced

Summary:

In this presentation, we will share a real life example of the combined use of Goal/Questions/Metrics (GQM) and Balanced Scorecard (BSC) to link Software Process Improvement (SPI) goals with business objectives. We show how we motivated the organization's Software Engineering Process Group (SEPG) to focus on achieving business goals and not just achieving a SEI CMMI maturity level. The SEPG assumed the responsibility to systematically collect, analyze and present "vital few" project and organization metrics concerning profitability of projects, employee morale/satisfaction, and customer feedback for quality, value, and timeliness of services rendered along with process maturity and process improvement information. We share useful lessons learned in enabling SEPG to speak the language of business.

G1: Putting a Performance Stake in the Ground

by Ron W. McClintic

Intermediate

Summary:

How fast is fast enough? Did the application actually achieve a performance test? Defining acceptable performance specifications, and getting agreement on those specs, is difficult. Presented here is a simple way to get agreement on performance specification, measure progress toward that spec, in a format that can be actively managed.

G2: Requirements Modeling to Define Test Cases (Part 1)

by Louise Tamres

Getting Started

Summary:

When receiving requirements, many perceive a magical step that automatically yields test cases. This could be true if requirements were complete, unambiguous, and presented in a comprehensive format. However, most systems are too complex, and imperfect specifications are quite common. Requirements Analysis identifies issues, and when this task is omitted, the tester is often the one who must translate deficient requirements into something useful. Applying Test Design Techniques is one way of analyzing and modeling requirements.

Using the principle that a picture is worth a thousand words, a good model focuses on content, helps the consumer ask the right questions, and improves comprehension of the system. Once you've applied these techniques, test cases practically write themselves. These models can also assist with estimating schedules, documenting tests, and prioritizing tests.

Attendees will learn how to:

- Perform requirements analysis
- Identify ambiguities in requirements
- Translate requirements into test cases
- Produce models that better communicate understanding
- Apply some of the more common test design techniques:
 - Decision Tables
 - Use Cases
 - State Transition Diagrams
 - Classification Trees
 - Pairwise Testing
- Provide estimates for scheduling testing tasks
- Prioritize tests

G3: Using CMMI to Improve Performance in Medical Device Software Engineering

by David Walker
Intermediate

Summary:

Quality system regulations and guidance literature for medical devices focus on product safety, and do not emphasize organizational performance or engineering processes. Frequently, medical device R&D teams are focused on meeting regulations and perform poorly in cost and schedule. This session will explore how the CMMI-DEV fills these gaps in project management, engineering, and process infrastructure and provides guidance for improved performance in medical device software engineering.

G4: A Framework for Improving the Software Quality Process Oversight Function

by Sheila McCabe & Mark Ofori-Kyei
Intermediate

Summary:

The development of large scale systems requires high quality software to be delivered on time and within budget. Key performance indicators associated with software development cost and schedule are reported during certain periods of a project, but these indicators do not always reflect a true level of software development project risk. General Dynamics C4 Systems has developed a Quality Process Performance Framework that improves the quality process oversight function. This framework serves

as a basis for root cause analysis and risk mitigation and provides a better indicator of software development project risk. This presentation will describe how this framework has made a favorable impact on project cost, schedule, and quality.

H1: Cognitive Illusions in Development and Testing

by Dorothy Graham

Intermediate

Summary:

We are all familiar with optical illusions: we see something that turns out to be not as it first appears. Isn't it strange that some part of our mind knows that another part of our mind is being deceived?

However, we are subject to self-deception in technical areas as well: these are cognitive illusions. This presentation explores some of the ways in which we deceive ourselves and why we do it. Examples are taken from the way Inspection is often practiced, testing issues, attitudes toward complexity, and the way in which "groupthink" can influence technical decisions.

There are a number of ways in which we "turn a blind eye" to issues which are vitally important such as quality and planning. Addressing these issues may help to explain why measurement programmes often fail, why post-project reviews are seldom done, what causes anxiety for developers, managers and testers, and how to counteract a blame culture.

- How our mind plays tricks on us: self-deception
- What is visible and not visible: turning a "blind eye"
- Blame culture: what causes anxiety for developers, testers and managers, and the effects.

H2: Requirements Modeling to Define Test Cases (Part 2)

by Louise Tamres

Getting Started

Summary:

This is a continuation of session G2.

H3: Importance of Quality Assurance in the Development of Software for Airborne Systems

by Luis Corral
Getting Started

Summary:

The present work shows how we can identify Quality Areas that establish processes and records that contribute to conform with RTCA DO-178B by means of designing and deploying a Quality Management System based on ISO-9001:2008. This work is the result of a comparative study of the similarities, differences and independent contributions of ISO-9001:2008 and RTCA DO-178B, with a focus on the collaboration between both standards in a production environment that requires assuring the quality of the software product for Aviation Systems.

H4: IDEAL/Six Sigma for Process Improvement

by Paul Pazderski
Getting Started

Summary:

A hands-on practical step-by-step Action Planning Workshop for Process Improvement, covering two models:

1. IDEAL™
2. 6σ (PDCA)

The IDEAL model, developed by the SEI, is an organizational improvement model which serves as a roadmap for a usable, understandable approach to continuous improvement by outlining the steps necessary to establish a successful improvement program. It is named for the five phases it describes: initiating, diagnosing, establishing, acting, and learning.

The 6σ (six-sigma) model originating from Motorola, is based on the PDCA ("Plan-Do-Check-Act") cycle identified by Edward Deming. It is an iterative four-step problem-solving process used in quality and process improvement based in data measurement. It is also known as the Deming Cycle, Shewhart cycle, Deming Wheel, and others.